

SEQUENCE LISTING

<110> University of South Florida

<120> Cellular Delivery of Natriuretic Peptides

<130> USF-180XC1 PCT

<150> 60/319,530

<151> 2002-09-06

<160> 17

<170> PatentIn version 3.1

<210> 1

<211> 1922

<212> DNA

<213> Homo sapiens

<400> 1

ctgtgagatc	accccgctgct	cccagcgctc	acgtcgggtcc	tcggaaagcc	ggggtcctcc	60
ctgccttttc	cagcaacggt	gggggtgggga	ggcaggaaga	aagcgccaac	ctaggacccc	120
ggagatttgc	agcaaaggaa	gaagcgggag	acgggcactt	gtctgtgtct	ccagcgcggt	180
cctgcccccc	gccgaccg	cccatttcta	tacaaggctc	ctctgcccgg	tctccacctc	240
ccacgtgcag	gccgcggagg	ggctcattcc	cgggcctga	tctcagaggc	ccggaatgtg	300
gctgataaat	cagagactag	acctgcatgg	caggcaggcc	cgacactcag	ctccaggata	360
aaaggccacg	gtgtcccag	gagccaggag	gagcaccctg	caggctgagg	gcagggtggga	420
agcaaaccctg	gacgcctcgc	agcagcagca	gcagcagcag	aagcagcagc	agcagcctcc	480
gcagtccctc	cagagacatg	gatccccaga	cagcaccttc	ccgggcgctc	ctgctcctgc	540
tcttcttgca	tctggctttc	ctgggaggtc	gttcccaccc	gctgggcagc	cccggttcag	600

```

cctcggactt ggaaacgtcc gggttacagg tgagagcgga gggcagctca gggggattgg 660
acagcagcaa tgaaagggtc ctcacctgct gtcccaagag gccctcatct ttcctttgga 720
attagtgata aaggaatcag aaaatggaga gactgggtgc cctgaccctg tacccaaggc 780
agtcggttca cttgggtgcc atgaagggct ggtgagccag ggggtgggtcc ctgaggcttg 840
gacgccccca ttcattgcag gagcagcgca accatttgca gggcaaactg tcggagctgc 900
aggtggagca gacatccctg gagcccctcc aggagagccc ccgtcccaca ggtgtctgga 960
agtcccggga ggtagccacc gagggcatcc gtgggcaccg caaaatggtc ctctacaccc 1020
tgcgggcacc acgaagcccc aagatggtgc aagggtctgg ctgctttggg aggaagatgg 1080
accggatcag ctctccagt ggcctgggct gcaaaggtaa gcacccctg ccaccccggc 1140
cgccttcccc cattccagt tgtgacactg ttagagtcac tttggggttt gttgtctctg 1200
ggaaccacac tctttgagaa aagggtcacct ggacatcgct tcctcttggt aacagccttc 1260
agggccaagg ggtgcctttg tggaattagt aaatgtgggc ttatttcatt accatgcca 1320
caataccttc tccccacctc ctactcttta tcaaaggggc agaatctcct ttgggggtct 1380
gtttatcatt tggcagcccc ccagtgggtgc agaaagagaa ccaaacattt ctcctgggtt 1440
tcctctaaac tgtctatagt ctcaaaggca gagagcagga tcaccagagc aatgataatc 1500
cccaatttac agatgaggaa actgaggtgc agagagttgc attaagcctc aaacgtctga 1560
tgactaacag ggtgggtgggt ggcacacgat gaggtaagct cagcccctgc ctccatctcc 1620
caccctaacc atcatcacc tctctctttc cctgacagtg ctgaggcggc attaagagga 1680
agtcctgggt gcagacacct gcttctgatt ccacaagggg ctttttcctc aacctgtgg 1740
ccgcctttga agtgactcat tttttttaat gtatttatgt atttatttga ttgttttata 1800
taagatgggt tcttaccttt gagcacaaaa tttccacggg gaaataaagt caacattata 1860
agctttatct tttgaaactg atttgtcttg gcgcattaaa aataatccct catttcaaag 1920
aa 1922

```

<210> 2

<211> 134

<212> PRT

<213> Homo sapiens

<400> 2

```

Met Asp Pro Gln Thr Ala Pro Ser Arg Ala Leu Leu Leu Leu Leu Phe
1          5          10          15

```

Leu His Leu Ala Phe Leu Gly Gly Arg Ser His Pro Leu Gly Ser Pro
 20 25 30

Gly Ser Ala Ser Asp Leu Glu Thr Ser Gly Leu Gln Glu Gln Arg Asn
 35 40 45

His Leu Gln Gly Lys Leu Ser Glu Leu Gln Val Glu Gln Thr Ser Leu
 50 55 60

Glu Pro Leu Gln Glu Ser Pro Arg Pro Thr Gly Val Trp Lys Ser Arg
 65 70 75 80

Glu Val Ala Thr Glu Gly Ile Arg Gly His Arg Lys Met Val Leu Tyr
 85 90 95

Thr Leu Arg Ala Pro Arg Ser Pro Lys Met Val Gln Gly Ser Gly Cys
 100 105 110

Phe Gly Arg Lys Met Asp Arg Ile Ser Ser Ser Ser Gly Leu Gly Cys
 115 120 125

Lys Val Leu Arg Arg His
 130

<210> 3

<211> 845

<212> DNA

<213> Homo sapiens

<400> 3

tggcgagggg	cagacgtagg	ccaagagagg	ggaaccagag	aggaaccaga	ggggagagac	60
agagcagcaa	gcagtggatt	gctccttgac	gacgccagca	tgagctcctt	ctccaccacc	120
accgtgagct	tcctcctttt	actggcattc	cagctcctag	gtcagaccag	agctaataccc	180
atgtacaatg	ccgtgtccaa	cgcagacctg	atggatttca	agaatttgct	ggaccatttg	240
gaagaaaaga	tgccctttaga	agatgaggtc	gtgcccccac	aagtgtcag	tgagccgaat	300
gaagaagcgg	gggctgctct	cagccccctc	cctgaggtgc	ctccctggac	cggggaagtc	360
agcccagccc	agagagatgg	aggtgccctc	gggcggggcc	cctgggactc	ctctgatcga	420
tctgccctcc	taaaaagcaa	gctgagggcg	ctgctcactg	cccctcggag	cctgcggaga	480

```

tccagctgct tcgggggcag gatggacagg attggagccc agagcgggact gggctgtaac    540
agcttccggt actgaagata acagccaggg aggacaagca gggctggggcc tagggacaga    600
ctgcaagagg ctccctgtccc ctgggggtctc tgctgcattt gtgtcatctt gttgccatgg    660
agttgtgatc atcccatcta agctgcagct tcctgtcaac acttctcaca tcttatgcta    720
actgtagata aagtggtttg atggtgactt cctcgcctct cccaccccat gcattaaatt    780
ttaaggtaga acctcacctg ttactgaaag tggtttgaaa gtgaataaac ttcagcacca    840
tggac                                                                    845

```

<210> 4

<211> 151

<212> PRT

<213> Homo sapiens

<400> 4

```

Met Ser Ser Phe Ser Thr Thr Thr Val Ser Phe Leu Leu Leu Leu Ala
1          5          10          15

Phe Gln Leu Leu Gly Gln Thr Arg Ala Asn Pro Met Tyr Asn Ala Val
          20          25          30

Ser Asn Ala Asp Leu Met Asp Phe Lys Asn Leu Leu Asp His Leu Glu
          35          40          45

Glu Lys Met Pro Leu Glu Asp Glu Val Val Pro Pro Gln Val Leu Ser
          50          55          60

Glu Pro Asn Glu Glu Ala Gly Ala Ala Leu Ser Pro Leu Pro Glu Val
65          70          75          80

Pro Pro Trp Thr Gly Glu Val Ser Pro Ala Gln Arg Asp Gly Gly Ala
          85          90          95

Leu Gly Arg Gly Pro Trp Asp Ser Ser Asp Arg Ser Ala Leu Leu Lys
          100          105          110

Ser Lys Leu Arg Ala Leu Leu Thr Ala Pro Arg Ser Leu Arg Arg Ser
          115          120          125

Ser Cys Phe Gly Gly Arg Met Asp Arg Ile Gly Ala Gln Ser Gly Leu
          130          135          140

```

Gly Cys Asn Ser Phe Arg Tyr
145 150

<210> 5

<211> 1803

<212> DNA

<213> Canis sp.

<400> 5

cgatcagggga tgttggggcg gaggaacgg aggggaaggag ggagcggagg agggcccgagg	60
actgttggtg tccccctcct gcccttttgg ggccaggccc acttctatac aaggcctgct	120
ctccagcctc caccgccgcg ggtatggtgc aggcgcggag gggcgcatc ccccgccctg	180
agctcagcgg ccggaatgcg gccgataaat cagagataac ccagggcgcg ggataaggga	240
taaaaagccc cgttgccgc gggatccagg agagcaccgc cggcccaagc ggtgacactc	300
gaccccggtc gcagcgcagc agctcagcag ccggacgtct ctttccccac ttctctccag	360
cgacatggag ccctgcgcag cgctgccccg ggccctcctg ctctcctgt tcttgacct	420
gtcgccactc ggaggccgc cccaccgct gggcgccgc agccccgcct cggaagcctc	480
ggaagcctca gaagcctcgg ggttggtggc cgtgcagggtg agcgctcagc ctgcctgaag	540
gccgcggcgg gtggcagcag gtcacggggg cttagccact gtcccaagtc ctcaagtctc	600
cttggggaatt agtgataagg gaatcagaaa gtgacgagat tgggtgccag gactccatac	660
ccaaggcggc ggcttcactt gggtgcaagg gtgggtccgc cccggcgtgg gttcctgagg	720
ctcaggccgt ccattgcagg agctgctggg ccgtctgaag gacgcagttt cagagctgca	780
ggcagagcag ttggccctgg aaccctgca ccggagccac agccccgcag aagccccgga	840
ggccggagga acgccccgtg gggtccttgc accccatgac agtgtcctcc aggccctgag	900
aagactacgc agccccaga tgatgcacaa gtcagggtgc tttggccgga ggctggaccg	960
gatcggtctc ctcaagtggc tgggctgcaa tggttaagccg cctccctgcc gccttggtc	1020
cccctcccca gccccctggg ttcgaccctt ggaaccctt ctgggtttgt tgtctcgggg	1080
gatcacactc tgaggaaagg acatctggac atcgctcctt cttgctgaca gtcctaaggg	1140
ccaaggagta cgtttctgga aatactacgt gtggacatcg ttgtccaggg tccctacca	1200
cctcctagcc ccctcctgcc tctcgacccc aagggcagaa tcctcttagg atggaatcag	1260
tcgttgtctg gaagcatctc cttggagcag aaagagtcct aaacatcgtc ctcgtagctc	1320

```

tctctgtctg tctgtagcca cgaaggcaga ggtcagggtc accagggcag tgatgattcc 1380
cagttaacag aggaggagac tgaggtctag agagatggat tattccaaag cctcaaacad 1440
ccagatcggc tgaggggtggg gttggtggca gggatggctc ctgggcttgg gaagctcgga 1500
tctgcctca gtctcccacc tgacgccatc atccccctct ctctcctccc acagtgtga 1560
gaaagtatta aggaggaagt cccgactgcc cacatctgca ttggattctt cagcagcccc 1620
tgagccccctt ggaagcagat cttatttatt cgtatttatt tatttattta tttcgattgt 1680
tttatataag atgatcctga cgcccagca cggtatttcc acggtgaaat aaagtcaacc 1740
ttagagcttc ttttgaaacc gatttgctcc tgtgcattaa aagtaacaca tcatttaaaa 1800
aaa 1803

```

<210> 6

<211> 140

<212> PRT

<213> Canis sp.

<400> 6

```

Met Glu Pro Cys Ala Ala Leu Pro Arg Ala Leu Leu Leu Leu Leu Phe
1          5          10          15

```

```

Leu His Leu Ser Pro Leu Gly Gly Arg Pro His Pro Leu Gly Gly Arg
20          25          30

```

```

Ser Pro Ala Ser Glu Ala Ser Glu Ala Ser Glu Ala Ser Gly Leu Trp
35          40          45

```

```

Ala Val Gln Glu Leu Leu Gly Arg Leu Lys Asp Ala Val Ser Glu Leu
50          55          60

```

```

Gln Ala Glu Gln Leu Ala Leu Glu Pro Leu His Arg Ser His Ser Pro
65          70          75          80

```

```

Ala Glu Ala Pro Glu Ala Gly Gly Thr Pro Arg Gly Val Leu Ala Pro
85          90          95

```

```

His Asp Ser Val Leu Gln Ala Leu Arg Arg Leu Arg Ser Pro Lys Met
100          105          110

```

```

Met His Lys Ser Gly Cys Phe Gly Arg Arg Leu Asp Arg Ile Gly Ser
115          120          125

```

Leu Ser Gly Leu Gly Cys Asn Val Leu Arg Lys Tyr
130 135 140

<210> 7

<211> 15

<212> DNA

<213> Homo sapiens

<400> 7

cgctgctcct gtaac

15

<210> 8

<211> 19

<212> DNA

<213> Homo sapiens

<400> 8

gcctcggact tggaaacgt

19

<210> 9

<211> 19

<212> DNA

<213> Homo sapiens

<400> 9

tgcagctccg acagtttgc

19

<210> 10

<211> 405

<212> DNA

<213> Homo sapiens

<400> 10

atggatcccc agacagcacc ttcccgggcg ctccctgctcc tgctcttctt gcatctggct

60

```

ttcctgggag gtcgttccca cccgctgggc agccccggtt cagcctcgga cttggaaacg      120
tccgggttac aggagcagcg caaccatttg cagggcaaac tgtcggagct gcaggtggag      180
cagacatccc tggagcccct ccaggagagc ccccgccccca caggtgtctg gaagtcccgg      240
gaggtagcca ccgagggcat ccgtgggcac cgcaaaatgg tcctctacac cctgcgggca      300
ccacgaagcc ccaagatggt gcaagggctc ggctgctttg ggaggaagat ggaccggatc      360
agtcctcca gtggcctggg ctgcaaagtg ctgaggcggc attaa                        405

```

<210> 11

<211> 456

<212> DNA

<213> Homo sapiens

```

<400> 11
atgagctcct totccaccac caccgtgagc ttcctccttt tactggcatt ccagctccta      60
ggtcagacca gagctaatac catgtacaat gccgtgtcca acgcagacct gatggatttc      120
aagaatttgc tggaccattt ggaagaaaag atgcctttag aagatgaggt cgtgccccca      180
caagtgtca gtgagccgaa tgaagaagcg ggggctgctc tcagccccct ccctgaggtg      240
cctccctgga ccggggaagt cagcccagcc cagagagatg gaggtgccct cgggcggggc      300
ccctgggact cctctgatcg atctgccctc ctaaaaagca agctgagggc gctgctcact      360
gccctcgga gcctgcggag atccagctgc ttcgggggca ggatggacag gattggagcc      420
cagagcggac tgggctgtaa cagcttccgg tactga                        456

```

<210> 12

<211> 1432

<212> DNA

<213> Mus musculus

```

<400> 12
gaattctcag gtcttgagct cagccggcag gaatgcagct gataaatcag agataacccc      60
accttacttc cgtgaaaagg tctggccgga cactcagccc cagtataaaa ggcagaggca      120
ccgttgttga agacaccagt gcacaagctg cttggggagg cgagacaagg gagaacacgg      180
catcattgcc tggcccatcg cttctgcggc atggatctcc tgaaggctgt gtcccagatg      240
attctgtttc tgcttttctt ttatctgtca ccgctgggag gtcactccca tcctctggga      300

```



```

agtcctagcc agtctccaga gcaattcaag atgcaggtga gcactgaggg tctgcctgaa 360
gggtttggga agcggcaatg aaaagacctc gagtcctttg ggaattagcc atgtgagagt 420
cagcaaaagtg aaagattggg cagcatatct cttaactgat gagcactatg gaaggatggg 480
ggattcaggt gtgtgtgttt ctgacgtctg ggctcccca tccatcacag aagctgctgg 540
agctgataag agaaaagtca gaggaatgg ccagagaca gctcttgaag gaccaaggcc 600
tcacaaaaga acacctaaaa agagtccttc ggtctcaagg cagcacctc cgggtccagc 660
agagacctca aaattccaag gtgacacata tctcaagctg ctttgggcac aagatagacc 720
ggatcggatc cgtcagtcgt ttgggctgta acggtgagca cctaccttgc cacttccctg 780
caaagctgca ccacccatcc catccccgtg catgctaccc ttagaggccc ctaggtttgc 840
tatctggcat actcctgcag cctgtcagga aatatcacat gggttctgca ttacattctc 900
acaggtcagc acctaccttc catcagaggg tcacacgctc tgaggagcag actgctgatg 960
tctatcacc cttcacaagg cagaaagagt ctgagcattc ccctcaggca aagggcatgc 1020
ccaaccact ttacaggaga aacagaggcc ctctgagata gctttttcca gagccttaaa 1080
cttcgacatc atctggggac tgaagatggg ggtgtggtgg tgggtgggga ctcggcacct 1140
gcttcagttt cacttcgagt gtgacattgc ctgtctctcc tccacagcac tgaagttgtt 1200
gtaggaagac ctcttggtc gcaggagagc tccagtttct gactctgccg ggtctctttc 1260
cctagctctg gaccacctct gaagtgatcc tatttattta tttatttata tttattattt 1320
atttttattt ttatttttta atttaatttt gttgtttttc acagctgttg ttacttggag 1380
cacaaactgc cacacataa taaacatac ttatttcctg cttttgaaaa gg 1432

```

<210> 13

<211> 1468

<212> DNA

<213> Mus musculus

<400> 13

```

gaattctcag gtcctgagct cagccggcag gaatcagctg ataaatcaga gataacccca 60
cccctactcc gtgaaaaggc ctggccggac actcagcccc agtataaaag gcagaggcac 120
cgttggtgaa gacaccagtg cacaagctgc ttggggaggc gagacaaggg agaacacggc 180
atcattgcct ggcccatcgc ttctgcggca tggatctcct gaaggtgctg tcccagatga 240
ttctgtttct gcttttcctt tatctgtcac cgctgggagg tctctcctat cctctgggaa 300

```

```

gtcctagcca gtctccagag caattcaaga tgcaggtgag cactgagggg ctgcctgaag 360
ggtttgggaa gcggaatga aaagacctcg agtcctttgg gaattagcca tgtgagagtc 420
agcaaaactga aagattgggc agcatatctc ttaactgatg agcactatgg aaggatgggg 480
gattcaggtg tgtgtgtttc tgacgtctgg gctccccaat ccatcacaga agctgctgga 540
gctgataaga gaaaagtcgg aggaaatggc ccagagacag ctcttgaagg accaaggcct 600
cacaaaagaa cacccaaaaa gagtccttcg gtctcaaggc agcacccctcc ggggccagca 660
gagacctcaa aattccaagg tgacacatat ctcaagctgc tttgggcaca agatagaccg 720
gatcggatcc gtcagtcggt tgggctgtaa cggtgagcac ctaccttgcc acttccctgc 780
aaagctgcac acccatccca tccccgtgca tgctaccctt agaggcccct aggtttgcta 840
tctggcatat tcctgcagcc tgtcaggaaa tatcacatgg gttctgcatt acattctcac 900
aggtcagcac ctaccttcca tcagaggggt cacacgctct gagggagcag actgcctgat 960
gtctaatacac cccttcacaa ggcagaaaaga gttctgagca tttccctca ggcaaagggc 1020
atgcccaacc cactttacag gagaaacaga ggccctgtga gatagctttt tccagagcct 1080
taaacttcga catcatctgg ggactgaaga tgggggtgtg gtgggtgggtg gggactcggc 1140
acctgcttca gtttcaactc cgagtgtgac attgccctgt ctctcctccc cacagcactg 1200
aagttgttgt aggaagacct cctggctgca ggagactcca gtttctgact ctgcctgggt 1260
ctctttcccc agctctggga ccacctttga agtgatccta tttatttatt tatttatatt 1320
tatttttatt tttatttttt aatttatttt gttgtttttc tacaagactg tttcttatct 1380
tggagcacia acttgccaca acataataaa catagcgtat ttctgcttt tgaaaaggat 1440
ttgtgtccgt gagtttcaat ctatctct 1468

```

<210> 14

<211> 628

<212> DNA

<213> Rattus norvegicus

<400> 14

```

gcgagacaag agagagcagg acaccatcgc agctgcctgg cccatcactt ctgcagcatg 60
gatctccaga aggtgctgcc ccagatgatt ctgctcctgc ttttcttaa tctgtcgccg 120
ctgggaggtc actcccatcc cctgggaagt cctagccagt ctccagaaca atccacgatg 180
cagaagctgc tggagctgat aagagaaaag tcagaggaaa tggctcagag acagctctca 240
aaggaccaag gccctacaaa agaacttcta aaaagagtcc ttaggtctca agacagcgcc 300

```

ttccggatcc aggagagact tcgaaattcc aagatggcac atagttcaag ctgctttggg 360
 cagaagatag accggatcgg cgcagtcagt cgcttgggct gtgacgggct gaggttggtt 420
 taggaagacc tcctggctgc agactccggc ttctgactct gcctgcggtt cttctttccc 480
 cagctctggg accacctctc aagtgatcct gtttatttat ttggttattt atttattttt 540
 atgttgctga ttttctacaa gactgtttct tatcttccag cacaaacttg ccacagtgtg 600
 ataaacatag cctatttctt gcttttgg 628

<210> 15

<211> 1479

<212> DNA

<213> Sus scrofa

<400> 15

caggctgcta ggaagtgaag agtgaacctg gacccagctc agcggcagca gcagcggcag 60
 caggcagcag cctctatcct ctctccagc cacatgggccc cccggatggc gcttccccgc 120
 gtgctcctgc tcctgttctt gcacctgttg ctgctaggat gccgttccca tccactgggt 180
 ggcgctggcc tggcctcaga actgccaggg atacagggtga gccctgatga actgcttaga 240
 cttggttggc tgggagggcg cggacagcag caactaacgg gtccccacct actgttccaa 300
 gagggctcta acctcctttg ggaactagtg ataaggggtt agaaggcagc caggctgggg 360
 gtgaggaccc cgctcccaag gcagttggtt cgcttcagca ccatcaagag tgatgggtcc 420
 aggtgcgagt tcctgaggct cgggctcccc caccatccc aggagctgct ggaccgcctg 480
 cgagacaggg tctccgagct gcaggcggag cggacggacc tggagcccct ccggcaggac 540
 cgtggcctca cagaagcctg ggaggcgagg gaagcagccc ccacgggggt tcttgggccc 600
 cgcagtagca tcttccaagt cctccgggga atacgcagcc ccaagacgat gcgtgactct 660
 ggctgctttg ggcgagggtt ggaccggatc ggctccctca gcggcctggg ctgcaatggg 720
 gagcaccac cccattccc actgcacgcc ccggttagca tcacttctgg gtttgatgtc 780
 tctggggacc aaactccgag aaaaggacac ctggatatca ctctttcttg ttgccagtcc 840
 tcaaggccaa ggagcgctt cctggaaaaa ttaaatttgg acagcattca ctagcatgac 900
 tatgagtccc caccacctt ctgccaccc cctgectctc tcaccaagg cggcagaatt 960
 actttaggat gttaaattctg tcattgcctg gctgccgctc ctgggagcaa aaagagaact 1020
 aaacctcttc cccctgggtt cccctcaact gtctgtggct gcaaaggcag agggcaggat 1080

caccaggggtg atgacaagtc ccagcttaca aggaggaaac tcaggtccag agagatggat	1140
tatcccaaag ccccaaacat ccagttctgc tgaagaaggc gggtaggcagg ggtggcacgt	1200
ggtagggggga agcccaggtc ctgcctgcct ctcaccctaa tgtcatcctc accctctctc	1260
tccccccac agtgctcagg aggtactgag aagtcctggc tgacaacctc tgtgtccgct	1320
tctccaacgc ccctcccctg ctccccttca aagcaactcc tgtttttatt tatgtattta	1380
tttattttatt tatttggtgg ttgtatataa gacggttctt atttgtgagc acattttttc	1440
catggtgaaa taaagtcaac attagagctc tgtcttttg	1479

<210> 16

<211> 1769

<212> DNA

<213> Bos taurus

<400> 16

ctgcagctga gggtcctggg gggtgtcggg gctgctcaag gcagaggggc tgtgacaagc	60
aggctggact gataacttta aaagggcatc ttctgctgct tcctcactca gctgctttat	120
cactgcaagt gacagaatgg ggaggggttc gtccctctcc cggacgagct ccagagagc	180
cagggggcta taaaaagagg aggctcaggg cagctgggag acagagacgg acaaaggcca	240
acagcaaaaag gccaaagagg acagggagga ggcagcaagc accagaccga ccattccttg	300
accgacgcca gcatgggctc ctccgccatc accgtgagct tcctcctctt tctggcattt	360
cagctcccag ggcaaacagg agcaaattcc gtgtatggct ctgtgtccaa tgcagacctg	420
atggatttca aggtagggcc agggaaacggc gatggtctgg ggctgagggg gttgtgacat	480
tgtgccaggc gagcgagacc tctccctttc cctgttttcc ttttgtaaag aatttgctgg	540
accgtttgga ggacaagatg cctttagaag atgaggctgt gccctcacia gtactaagtg	600
agcagaatga agaagctggg gccctctca gcccctttc agagatgct ccctggatgg	660
gggaggtcaa ccagcccag agagaggggg gcgtcctcgg gcggggcccc tgggaatcct	720
ccgatagatc tgccctcctg aagagcaagc tgagggcact gctcactgcc cctcggagcc	780
tgcggaggtc cagctgcttc gggggaagga tggacaggat tggagcccag agtggattgg	840
gctgcaacag cttccgggta agaggacctg agaattgaaa tgggatgggg aggaaggaaa	900
ttgtggcttc attgaagttc aaaccttgtg aaagaacatc gccagggaat gccttcagta	960
ggaaagggac agcatagaag caacccttt gaaatttctg ccccaacttg gcagggagga	1020
gggtgtgctc tgagtctcag gacaatgata ccaacctagc tacagttttc tgagagaatg	1080

ctaagaaaaa aagactttac tgccacgagc actggggact taaattgttc atgggggcaa 1140
 ataacctgtg ctttgctgat tggtagtttg tgtcctttgc agaatcatca gatcccaaag 1200
 gattgaaatt gagcaggact gactttacta gttcctaata ggcaatttgt ttaccagttt 1260
 atagaagtca gaggggtcatc aggctggagt ggaggctggt gggaaggag gagcagctga 1320
 tgaagctggc ttttccagtg gagtcaggtc accaaaccaa acatgtctct gctctcttgt 1380
 agtatcgaag ataatggcca gggaggaaaa ggcaggccag gccctgggca gtcttcaaga 1440
 gaatcccctg ggggtctctca ctcaactttg tcgcatctgg ttgccatcaa gttgagctgt 1500
 gaccgagcat tcaagcatca gcttcttgtc aacatttctc acattttatg ctaaagttag 1560
 acaaagtgat ttaactgtgg ccttctccac ctctcccacc catgtgttaa gttttaatca 1620
 cctgttacca acatcagttt gaaaatgaat aaacttcagc accatggaca gaagcagtag 1680
 gctcgggttg gtgtgatttc tttcatttcc ggaagggagt tcagcctgat actccttgtc 1740
 attttacctt ttgttgga gaagaattc 1769

<210> 17

<211> 1301

<212> DNA

<213> Rattus norvegicus

<400> 17

gcgagacaag agagagcagg acaccatcgc agctgcctgg cccatcactt ctgcagcatg 60
 gatctccaga aggtgctgcc ccagatgatt ctgctcctgg ttttccttaa tctgtcgccg 120
 ctgggagggtc actcccatcc cctgggaagt cctagccagt ctccagaaca atccacgatg 180
 caggtgagca ccgaggggtct gcatagggag atggagcctg cctgaagggt tttgggcagc 240
 agcaatgaaa agacctcatg tcctttggga attaaccacg cgagagtcag gaaacggaaa 300
 gattgggcag cagatccctt aaccacaggc actgtggaag ggtgggggag ccaggtgtgt 360
 atgtgtgtgt gtgtctgagg tctgggcttc ccaattcgtc acagaagctg ctggagctga 420
 taagagaaaa gtcagaggaa atggctcaga gacagctctc aaaggaccaa ggccctacaa 480
 aagaacttct aaaaagagtc cttaggtctc aagacagcgc cttccggatc caggagagac 540
 ttcgaaattc caagatggca catagttcaa gctgctttgg gcagaagata gaccggatcg 600
 gcgcagtcag tcgcttgggc tgtgacggtg agcaoctacc ttgccgcttc cctgcaaagc 660
 tgcaacgcatc ccgttcccct gcatgccgcc ctgagaggcc ccttggtttg ctctcagaca 720

```

tacttgacac gcctgcctct accttaccga cagtcttcaa gaccaaggca gtctgtcagg      780
aagtctcaca tgggtacttc attacaccgt cccaggtgag cacctacctc cttcagaggt      840
gtcacagggt tcccagggaa cagactgcct gatgtctgat cactctgagc atctcccctc      900
cgtcttcacc aaactgaatt atccgaggca aagggcaggc ccagtgagat agcttttccc      960
agagccgtta aacttcgaca tcatctggga accaaagatg ggggtgcggt gtggcagggg     1020
aagctcagct cctgcctcag tttcactccc cagtctgaca ctggtttctc ctcccacagg     1080
gctgaggttg ttttaggaag acctcctggc tgcagactcc ggcttctgac tctgcctgcg     1140
gctcttcttt cccagctct gggaccacct ctcaagtgat cctgtttatt tatttgttta     1200
tttatttatt tttatgttgc tgattttcta caagactgtt tcttatcttc cagcaciaac     1260
ttgccacagt gtaataaaca tagcctatctt cttgcttttg g                        1301

```

<210> 18

<211> 152

<212> PRT

<213> Bos taurus

<400> 18

```

Met Gly Ser Ser Ala Ile Thr Val Ser Phe Leu Leu Phe Leu Ala Phe
1           5           10          15

```

```

Gln Leu Pro Gly Gln Thr Gly Ala Asn Pro Val Tyr Gly Ser Val Ser
20           25           30

```

```

Asn Ala Asp Leu Met Asp Phe Lys Asn Leu Leu Asp Arg Leu Glu Asp
35           40           45

```

```

Lys Met Pro Leu Glu Asp Glu Ala Val Pro Ser Gln Val Leu Ser Glu
50           55           60

```

```

Gln Asn Glu Glu Ala Gly Ala Pro Leu Ser Pro Leu Ser Glu Met Pro
65           70           75          80

```

```

Pro Trp Met Gly Glu Val Asn Pro Ala Gln Arg Glu Gly Gly Val Leu
85           90           95

```

```

Gly Arg Gly Pro Trp Glu Ser Ser Asp Arg Ser Ala Leu Leu Lys Ser
100          105          110

```

15

Lys Leu Arg Ala Leu Leu Thr Ala Pro Arg Ser Leu Arg Arg Ser Ser
 115 120 125

Cys Phe Gly Gly Arg Met Asp Arg Ile Gly Ala Gln Ser Gly Leu Gly
 130 135 140

Cys Asn Ser Phe Arg Tyr Arg Arg
 145 150

<210> 19

<211> 121

<212> PRT

<213> Mus musculus

<400> 19

Met Asp Leu Leu Lys Val Leu Ser Gln Met Ile Leu Phe Leu Leu Phe
 1 5 10 15

Leu Tyr Leu Ser Pro Leu Gly Gly His Ser Tyr Pro Leu Gly Ser Pro
 20 25 30

Ser Gln Ser Pro Glu Gln Phe Lys Met Gln Lys Leu Leu Glu Leu Ile
 35 40 45

Arg Glu Lys Ser Glu Glu Met Ala Gln Arg Gln Leu Leu Lys Asp Gln
 50 55 60

Gly Leu Thr Lys Glu His Pro Lys Arg Val Leu Arg Ser Gln Gly Ser
 65 70 75 80

Thr Leu Arg Val Gln Gln Arg Pro Gln Asn Ser Lys Val Thr His Ile
 85 90 95

Ser Ser Cys Phe Gly His Lys Ile Asp Arg Ile Gly Ser Val Ser Arg
 100 105 110

Leu Gly Cys Asn Ala Leu Lys Leu Leu
 115 120

<210> 20

<211> 121

<212> PRT

<213> Rattus norvegicus

<400> 20

Met Asp Leu Gln Lys Val Leu Pro Gln Met Ile Leu Leu Leu Leu Phe
 1 5 10 15

Leu Asn Leu Ser Pro Leu Gly Gly His Ser His Pro Leu Gly Ser Pro
 20 25 30

Ser Gln Ser Pro Glu Gln Ser Thr Met Gln Lys Leu Leu Glu Leu Ile
 35 40 45

Arg Glu Lys Ser Glu Glu Met Ala Gln Arg Gln Leu Ser Lys Asp Gln
 50 55 60

Gly Pro Thr Lys Glu Leu Leu Lys Arg Val Leu Arg Ser Gln Asp Ser
 65 70 75 80

Ala Phe Arg Ile Gln Glu Arg Leu Arg Asn Ser Lys Met Ala His Ser
 85 90 95

Ser Ser Cys Phe Gly Gln Lys Ile Asp Arg Ile Gly Ala Val Ser Arg
 100 105 110

Leu Gly Cys Asp Gly Leu Arg Leu Phe
 115 120

<210> 21

<211> 131

<212> PRT

<213> Sus scrofa

<400> 21

Met Gly Pro Arg Met Ala Leu Pro Arg Val Leu Leu Leu Leu Phe Leu
 1 5 10 15

His Leu Leu Leu Leu Gly Cys Arg Ser His Pro Leu Gly Gly Ala Gly
 20 25 30

Leu Ala Ser Glu Leu Pro Gly Ile Gln Glu Leu Leu Asp Arg Leu Arg

35	40	45
Asp Arg Val Ser Glu Leu Gln Ala Glu Arg Thr Asp Leu Glu Pro Leu		
50	55	60
Arg Gln Asp Arg Gly Leu Thr Glu Ala Trp Glu Ala Arg Glu Ala Ala		
65	70	75
Pro Thr Gly Val Leu Gly Pro Arg Ser Ser Ile Phe Gln Val Leu Arg		
	85	90
Gly Ile Arg Ser Pro Lys Thr Met Arg Asp Ser Gly Cys Phe Gly Arg		
	100	105
Arg Leu Asp Arg Ile Gly Ser Leu Ser Gly Leu Gly Cys Asn Val Leu		
	115	120
Arg Arg Tyr		
130		